FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World.
Founder and Editor: STANLEY SPOONER
A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 698. (No. 19, Vol. XIV.) MAY 11, 1922 [Weekly, Price 6d. Post free, 7d.

Flight,

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:
United Kingdom .. 30s. 4d. Abroad .. .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* *European subscriptions must be remitted in British currency*

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DIARY OF FORTHCOMING EVENTS

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June 5 .... **R.Ae.C. Whitsun Race Meeting, at Waddon**
June 23–25 **International Competition for Touring Aeroplanes, Brussels**
Aug. 6–20 **French Gliding Competition**
Aug. 6 .... **Gordon-Bennett Balloon Race, Geneva**
Aug. 7 .... **R.Ae.C. Race Meeting, at Waddon**
Aug. (last fortnight) **Schneider Cup Seaplane Race, at Naples**
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Sept. .... **Italian Grand Prix**
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1923.

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1924.

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The Index for Vol. XIII of FLIGHT (January to December, 1921) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 1s. per copy. (1s. 1d. post free).

EDITORIAL COMMENT.

Air Mails in Parliament

IN making his statement on the Post Office Vote in the House on May 4, the Postmaster-General referred, among other things, to the Air Mail and the success which had attended its use, stating that the progress made during last year was greater than any other period since man conquered the art of flight. Mr. Kellaway pointed out again that the greatest benefit had been secured in the parcels post, that to Paris effecting a saving of from five to six days, owing to the greater Customs facilities. Of the air mail services Mr. Kellaway thought that that between Cairo and Baghdad had been the most successful, effecting a saving of 16 to 18 days, and he visualised the time when similar savings would be made by the use of air mails throughout the Empire.

So far as getting official confirmation of the value which the air mail can and does afford, the statements of the P.M.G. are highly satisfactory, showing as they do that he is alive to the possibilities of this mode of mail-carrying. But that seems to be as far as we have got. With the exception of the London–Brussels service, which has not actually started yet, we still stick to the comparatively insignificant service between London and Paris, which does not really give any great advantage over existing mail services. In order to obtain full advantage of the air mail, longer distances are necessary, and it would appear to be well past the time we seriously thought of linking up the Mother-country with India and Australia by air mail.

The saving made on the Cairo-Baghdad route is excellent, but a far greater saving could be effected by supplementing that by an air service between London and Cairo. It appears that we are so busy thinking of the competition with fast trains that we forget the very much easier competition with steamers

We have shown that between London and Paris, one of the best-served routes in existence, we can more than hold our own in actual point of time—although not by much. But suppose we were to start an air mail service between, for the sake of argument, Marseilles and Cairo. There we should be competing, not with express trains, but with relatively slow steamers. In other words, instead of competing against 60 m.p.h. we should be competing against 20 m.p.h. Allowing for the fact that, at present at any rate, it is not practicable to run day and night, we should double the steamer speed to arrive at the average speed at which we should have to fly in order to make as good time as the steamer. That figure would only be 40 m.p.h. Flying by day only, we should need to fly for 12 hours at 40 m.p.h. in order to obtain the same average speed as the steamer. On account of the delays at the terminal aerodromes, we have to fly at approximately 90 m.p.h. on the London–Paris route. It will at once be seen what an enormous advantage it is to have to compete against steamships instead of trains. And yet no attempt whatever has been made so far to experiment with a seaplane mail service. Why is this? We have the machines capable of doing good service as mail-carriers, and we have the pilots (at least we have at present, although if something is not done quickly we shall not have them long) with sufficient experience of seaplane flying to make such a service a success. Why not use them before it is too late? In a very short time we shall have to begin very seriously the training of specialists in seaplane flying, and as the seaplane is the ideal craft for linking up our Empire, why not begin at once to make use of it? There should be no difficulty in arranging with the French to be allowed to have a seaplane terminus (purely commercial, of course) at Marseilles or some other Mediterranean port, and the journey to Cairo, with stops at Corsica or Sardinia, Malta and Crete, for instance, should be well within the capacity of existing British seaplanes. Mr. Kellaway stated that the recently formed Civil Aviation Advisory Board were directing their attention to the Baghdad–Bombay section of a possible Imperial air route. We would suggest that, before going so far afield, greater opportunities exist much nearer home.

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The New Attempt on Round-the-World Flight

Elsewhere in this issue of FLIGHT will be found a brief outline of the plans of Maj. Wilfred Blake and Capt. Norman Macmillan for their attempt to make the flight around the world. The Aircraft Disposal Company has, with commendable sporting spirit, placed four machines at their disposal, and the project appears to give fair promise of success. The machines to be used, although not of new types, have stood the test of time, and, given reasonable luck, the aviators should have a very good chance of getting through. Although as a sporting effort the use of a single machine for the entire flight would have been more spectacular, the employment of four machines, of three different types, will be a much closer representation of the actual conditions which will obtain when we come to run really long-distance services, and from that point of view is, perhaps, of even greater practical value. The Rolls-Royce and Siddeley "Puma" engines have both proved themselves thoroughly reliable on many long-distance flights, and the de Havilland and Fairey machines are equally famed for their excellent qualities. We must confess that, personally, we should have liked to see a different machine than the F-type flying boat for the last stage, as there are several which would, in our opinion, be more suitable for the work. Time does not, however, allow of getting a new machine built in time, unless the Air Ministry could be persuaded to lend one, and the F boat is the nearest approach to the ideal machine wanted. Except for unforeseen accidents the venture should succeed, and we wish everybody concerned the very best of luck.

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Opening of London–Brussels Air Service

On Monday, May 7, the first of the D.H.34 machines belonging to the Instone Air Line made the inaugural flight from London to Brussels and back. This service, it will be remembered, is to be operated by the Instone Air Line, and this flight was the first to be made over the route by a British "approved" company. Last year the service was operated by the S.N.E.T.A., but it is gratifying to see a British firm taking it up. The actual regular service is to be started on May 15, and the London–Brussels line may well prove in the future one of the most important radiating from London, linking up, as it does, this country with northern and central Europe. There can be no doubt that in years to come the connection with these countries will be one of great importance, and one may even look far enough ahead to visualise the time when the London–Brussels line is the first stage of a route to Germany and the Far East. We therefore congratulate the Instone Air Line on being the first to open the new line, and trust their bold enterprise will receive well-merited reward.

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The French Gliding Competition

Encouraged by the successes attained in the German soaring and gliding tests in the Rhön mountains last year, the French Aerial Association and the Aero Club of Auvergne are organising a somewhat similar competition at Puy de Combegrasse, near Clermont-Ferrand, Auvergne, between August 6 and August 20. The rules for the competition and the allocation of prizes are dealt with in another column of this issue of FLIGHT. From these it will be seen that a total amount of prizes of 100,000 francs is to be awarded. At the present rate of exchange this amounts to approximately £2,200. As the machines need cost very little—certainly it should be possible to build a glider for £50 to £60—the prizes should be ample for more than covering expenses, and we trust to see this country represented at Clermont-Ferrand. At present there are several amateurs interested in gliding, but no actual flights have, so far as we are aware, been yet made. The French competition should afford a good opportunity for constructing a glider with at least a sporting chance of covering its cost by winning a few prizes. For this reason we welcome the French competition, and it may well prove the beginning of an active interest in this form of flying being taken in this country also. Next year the Royal Aero Club might do worse than organise a similar competition at home. There will then be both the French and German experience to draw upon for data. We are not among those who think that experiments of this sort will lead to motorless commercial flying, but quite a lot may be learned, at comparatively low cost, about aerodynamic efficiency, which could be incorporated in commercial machines with considerable gain in economy.

FLIGHT

THE 100 H.P. BRISTOL "LUCIFER" PASSES ITS TYPE-TESTS

Fine Performance of Air-Cooled Engine

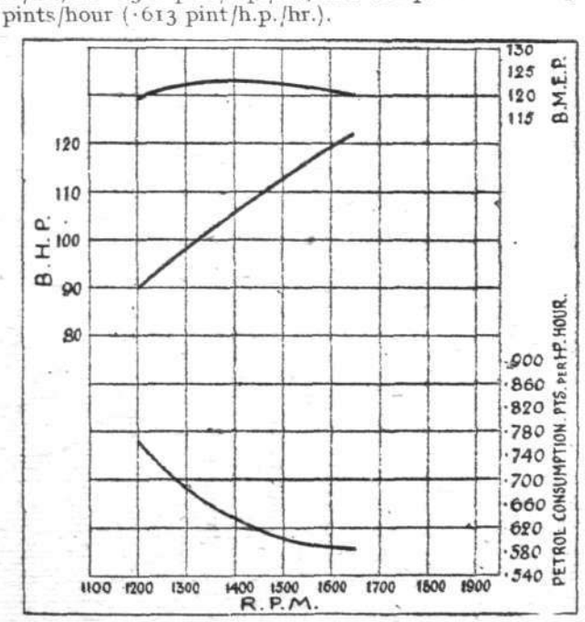
IN our report on the Easter Monday Race Meeting at Waddon, reference was made to the Bristol "Lucifer" engine mounted in the little Bristol monoplane flown by Uwins, and mention was made of its smooth running, considering that it has only three cylinders. We now learn that the "Lucifer" has successfully passed its type-tests in accordance with British Air Ministry Type-Test Schedule of May, 1920. This is an achievement of which the makers may well be proud, as the tests are very severe. It will be remembered that the 400 h.p. Bristol "Jupiter," also an air-cooled radial, passed its type-tests some months ago, and the fact that the "Lucifer" has now also passed these tests is further proof, if such were needed, of the high qualities of Bristol design and workmanship. In connection with the "Lucifer," it is not without interest to note that the engine used for the tests, No. 301, was one of the first two experimental engines of this type, and was fitted with "K" type, Mark II, cylinders. Previous to the commencement of the tests the engine had run for 155 hours 14 minutes, on various experimental tests, and on flight tests in an "Avro" biplane. The engine was not, therefore, one specially produced for the type-tests, and we understand that it was standard in every respect.

As regards the tests themselves, 30 hours of the 90 per cent. endurance test, high-speed, and high-power tests were carried out on a Heenan and Froude dynamometer, while 20 hours of the endurance test were run in the hangar, driving a propeller. The fuel used was an 80 per cent. aviation spirit and 20 per cent. benzole mixture. The slow running and acceleration tests were carried out on the Heenan and Froude dynamometer. From the following tables it will be noted that two non-stop runs of ten hours each were made, one on the Heenan and Froude, and one in the hangar.

On January 25, 1922, before commencing the endurance test, a run of 43 minutes was made, giving the results shown in Table 1.

Considerations of space do not allow of publishing in full the details of the 50 hours' endurance tests, but the synopsis in Table 2 will give a very fair idea of the results obtained.

On February 4, 1922, the engine was put through a half-hour slow-running test, when it developed 11·4 (actual) b.h.p. at a speed of 740 r.p.m. On February 6 the high-speed and high-power tests were completed. In the former the engine ran for one hour at 1,822 r.p.m., developing 57·1 b.h.p., the oil pressure being 51 lbs./sq. in. and the oil temperature 61° C. The oil consumption was 4·125 pints per hour, and the petrol consumption was 47 pints per hour, or ·823 pint/h.p./hr. In the high-power test, also lasting one hour, the engine ran at a speed of 1,655 r.p.m., developing 120·5 b.h.p. The oil pressure was 58 lbs./sq. in., and the oil temperature 51° C. The oil consumption was 3·75 pints/hr., or ·0311 pint/h.p./hr., and the petrol consumption 74 pints/hour (·613 pint/h.p./hr.).



Power Curve, etc., of Bristol "Lucifer," taken at end of 50 hours' run.

On February 6, at the end of the endurance test, the "Lucifer" was given a 50-minutes' run, and the data obtained are given in Table 3.

TABLE 1

Power Test before Commencement of Endurance Test

R.P.M.	Load on brake, lbs.	H.P. Actual.	H.P. Corrected.	Fuel. Pts. per hour.	Fuel. Pts./h.p./hr. Actual.	Fuel. Pts./h.p./hr. Corrected.	B.M.E.P. on actual h.p. lbs. per sq. in.
1,200	84½	84·5	86·3	61½	·728	·713	117
1,300	88	95·4	97·4	70	·734	·719	122
1,400	85½	99·8	102·0	85	·853	·833	118
1,400	87½	102	104·1	90	·883	·865	120
1,500	86	107·5	110	79	·735	·720	119
1,600	84	112	114·5	63	·562	·560	116
1,650	82½	113·5	116	63	·555	·544	114
1,600	84½	112·7	115	63	·558	·548	116
1,500	85½	107	109·2	67½	·630	·618	118
1,400	87	101·5	103·8	68	·670	·656	120
1 300	88	95·4	97·4	74½	·780	·765	122
1,205	85	85·3	87·0	68	·796	·781	117
1,300	88	95·4	97·4	76	·796	·781	122
1,400	88	102·5	104·8	69	·673	·659	121
1,500	86	107·6	110·0	65	·604	·590	119
1,605	84	112·4	115·0	62½	·555	·545	116
1,650	83	114·2	116·8	63	·552	·540	115

Barometer, 29·3; weather, fine.

TABLE 2

Synopsis of 50-hrs. Endurance Test

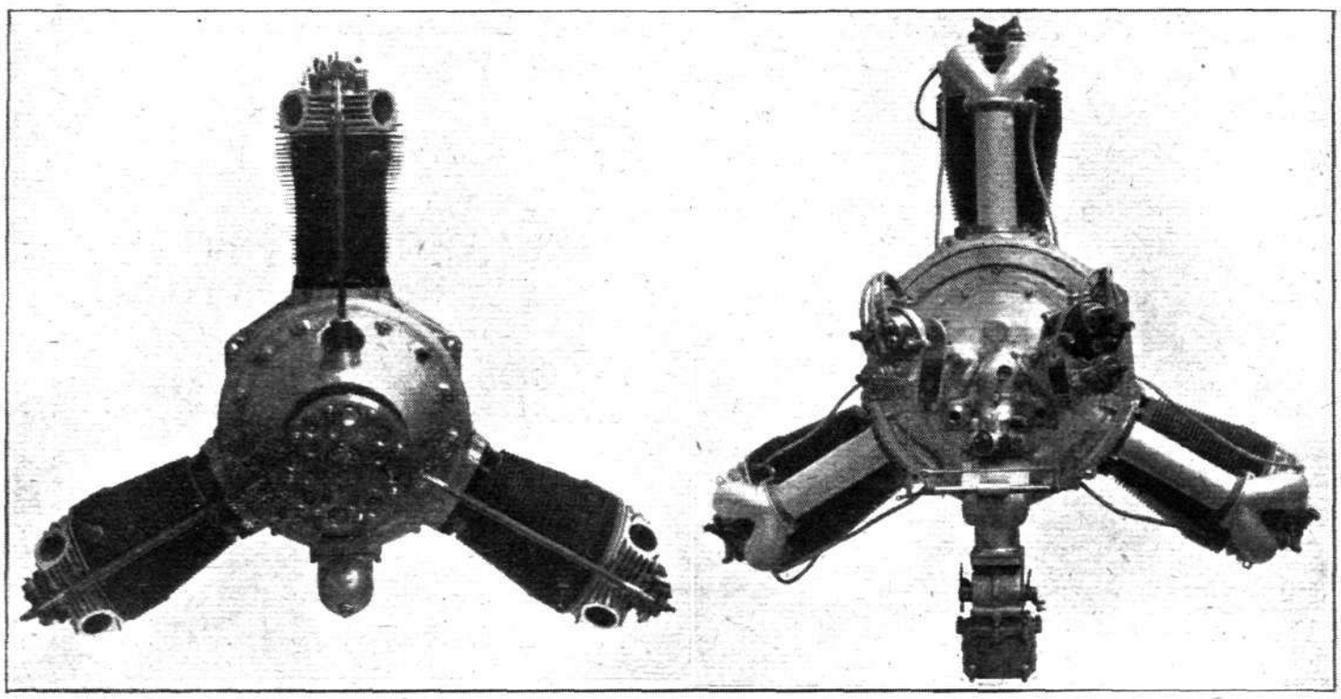
Date. 1922.	Non-stop runs.	R.P.M.	B.H.P. corrected	Oil press. lbs./sq. in.	Oil consumed. Pts./h.p./hr.	Petrol. Pts./ hr.	Petrol. Pts./ h.p./hr.
H. & F.—	h. m.						
25·1	1 30	1,602	92	56	·0241	52·6	·582
25·1	3 55	1,604	92·7	50	·0302	54·25	·597
31·1	4 45	1,600	91·8	55	·0295	52·75	·586
1·2	10 00	1,600	91·8	51	·0336	54·00	·595
Hangar—							
2·2	10 00	1,600	91·0	50	—	53·26	—
2·2 to 3·2	6 00	1,600	91·0	52	—	52·6	—
	4 00	1,600	91·0	52	—	52·6	—
H. & F.—							
3·2 to 4·2	9 00	1,614	92·5	54	·0345	55·1	·606
4·2	1 00	1,609	102·4	50	·0348	62·1	·618

TABLE 3

Power Test at Completion of Endurance Test

R.P.M.	Load on brake, lbs.	H.P. Actual.	H.P. Corrected.	Fuel. Pts. per hour.	Fuel. Pts./ h.p./hr.	B.M.E.P. on actual h.p. lbs. per sq. in.
1,650	88	121	121	73	·602	119
1,605	89	119·2	119·2	71	·595	121
1,500	90	112·8	112·8	68	·604	122
1,405	90	105·7	105·7	66	·625	122
1,305	90	98·0	98·0	67	·684	122
1,210	88½	89·3	89·3	67	·750	120
1,300	90½	98·0	98·0	66	·674	123
1,400	91	106·2	106·2	66	·622	123
1,500	90½	113·2	113·2	69	·611	122
1,600	89½	119·6	119·6	71	·594	121
1,650	88	121·2	121·2	73	·602	119
1,600	89	119	119	71½	·600	121
1,510	90	113·5	113·5	69	·608	122
1,420	90½	107·2	107·2	66	·615	123
1,295	90	97·2	97·2	66	·679	122
1,205	87	87·5	87·5	67	·765	118

Barometer, 30". Weather, fine.



Front and rear views of the Bristol "Lucifer" Aero engine.

The average petrol consumption during the endurance test was ·610 pint/h.p./hr. and the oil consumption ·036 pint/h.p./hr. At the conclusion of the 50 hours' test the engine was dismantled, and its condition was found to be excellent. One exhaust valve had to be replaced, but this was traced to faulty material. After being re-erected the engine did two tests of one hour each, one at full throttle and one at high speed. During the former the engine was run at 1,760 r.p.m. and developed 118 b.h.p., the m.e.p. being 109 lbs. per sq. in. and the fuel consumption ·602 pint per h.p. per hour. In the high-speed test the engine was run at 1,850 r.p.m. and developed 50 h.p., the m.e.p. being 44 lbs./sq. in and the petrol consumption ·9 pint/h.p./hr.

The general appearance of the Bristol "Lucifer" will be seen from the accompanying photographs. It is a three-cylinder, air-cooled radial, with cylinders similar to those of the nine-cylinder 400 h.p. Bristol "Jupiter." The bore and stroke are $5\frac{3}{4}$ ins. and $6\frac{1}{4}$ ins. respectively, and the total stroke volume of the engine 486·936 cubic ins. The compression ratio is 4·8 to 1, and the normal brake h.p. is 100 h.p. at 1,600 r.p.m. and at ground level. The average fuel consumption in the air is 61 pints per hour, and the oil consumption 3·6 pints per hour, or 55 lbs. and 4·22 lbs. per hour, respectively. The weight of the engine complete, including propeller hub, carburettor and heater box, is 324 lbs.

For economical and reliable machines of small size, such as two or three seater touring machines, small military machines, and school machines, both land and seaplanes, the "Lucifer" should be a very attractive proposition. In this connection it may be mentioned that already the Bristol company has standardised their little monoplane with this engine, and are also constructing a comfortable three-seater touring aeroplane to take it. A good deal should therefore be heard of the "Lucifer" in the near future, and we have no doubt that the engine will soon establish a reputation. The fact of having passed the Air Ministry type-tests is in itself an excellent beginning.

CALTHROP PARACHUTE TESTS AT CROYDON

SOME interesting experiments were carried out at Croydon last Saturday with "Guardian Angel" parachutes. Unfortunately time did not permit of the carrying out of the full programme of the tests, but further tests are to be made later.

The first drop made was of a dummy man with the "H" type "Guardian Angel" parachute with standard 28-ft. silk body. The dummy man was carried in the new frontal-suspension harness, fitted with instant connector and quick release, the life-line attaching the dummy man to this parachute being fitted with a small resistance parachute to show the advantage of providing additional resistance to speed up the disconnection of a "dropping" type parachute in a nose dive. A description of the "H" type parachute appeared in FLIGHT for March 23, 1922.

The test showed that the small resistance parachute, which was only 4 ft. in diameter, perceptibly speeded up the extraction of the parachute and pulled the dummy man considerably to the rear of the normal path usually taken.

In order to avoid any possibility of accident to a pilot or aeroplane, it is always preferable to test a new invention of this kind by a series of small advances without accident than to risk damage to the pilot and his machine by making too big advances at a time.

Although the resistance parachute opened instantly, Capt. Muir reported that no shock whatever was felt on his machine, so that on the next occasion it will be safe to employ a resistance parachute of much greater area, in which the effect would be much more marked.

In the second flight the dummy man was dropped with an "H" type parachute, fitted with a newly-invented "Calthrop" body, provided with three annular rings of air pockets, the object of which is to produce enhanced cantilever effect of the compressed air passing under the periphery of the body, and thus giving additional resistance. Again, in order to proceed with caution for the sake of safety to the pilot and the machine, the air pockets were contracted to about one-tenth of their full extension.

The opening of the body was extraordinarily quick, but perfectly elastic; and again Capt. Muir reported that there was no shock whatever to his machine. The result of the experiment was to show that the rate of descent was appreciably slower.

On the next occasion this body will be tested with its pockets fully extended, the result being probably a much slower drop.

In this same flight a small teddy-bear was carried on the lower wing to test, in model form, the action of "soaring" type parachutes. This was fitted with a pilot and intermediate parachute. It acted perfectly, and the pilot, intermediate and main parachutes all came down in a perfectly straight line without any kind of wobbling, which has been previously experienced with parachutes, in tandem and chain, so that this difficulty has apparently been got over.

Time did not permit of the dropping of the mail-dropping parachutes, but in the third flight Mr. Reed, Mr. Newell's assistant, made a first drop in a "Guardian Angel" parachute, and was delighted with his experience.

FLIGHT

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

WHITSUNTIDE AIR RACES AT WADDON AERODROME, CROYDON, ON SATURDAY, JUNE 3, 1922,

Starting at 3 p.m.

1. **Third Club Handicap.**—The entrant of the winner will receive £20. Open to all types of machines with a speed not exceeding 120 m.p.h.

The race is over a distance of approximately 16 miles, comprising two circuits of the course.

2. **First Sprint Handicap.**—The entrant of the winner will receive £20. Open to all types of machines with a speed of over 120 m.p.h.

The race is over a distance of approximately 16 miles, comprising two circuits of the course.

3. **First Whitsuntide Handicap.**—The entrant of the winner will receive £50. If five starters the second will receive £20. Open to all types of machines with a speed of over 100 m.p.h.

The race is over a distance of approximately 24 miles, comprising three circuits of the course.

4. **Surrey Open Handicap.**—The entrant of the winner will receive £30. If five starters the second will receive £10. Open to all types of machines.

The race is over a distance of approximately 16 miles, comprising two circuits of the course.

Entries.—The entry fee for each event is £1. This fee, together with the entry form, must be received by the Royal Aero Club, 3, Clifford Street, London, W. 1, not later than 5 p.m. on Monday, May 29, 1922.

Balloon Sniping Competition.—The Royal Aero Club Avro machines will be used for this competition. No charge will be made for the machines.

The entrant of the winner will receive a prize value £10. The entry fee for this event is £1.

The Aircraft Disposal Company, Ltd., have certain machines available for the races, and they will be prepared to consider applications for the hire of these from qualified pilots. Applications should be made direct to the Company at Waddon Aerodrome, Croydon.

The following Royal Aero Club machines will also be available :—

Avro (2-seater) 110 h.p. Le Rhone.
Avro (2-seater) 110 h.p. Le Rhone.
Avro (2-seater) 110 h.p. Le Rhone.

Qualified pilots wishing to take part in the races may hire any of these machines from the Club at £3 for each event, which will include cost of petrol, oil and insurance of machine. Applications for these machines should be made direct to the Club.

Further particulars of the races may be obtained from the Club.

RACING COMMITTEE

The Racing Committee met at Waddon Aerodrome, Croydon, on Saturday, May 6, 1922.

Present: Major-Gen. Sir Sefton Brancker, K.C.B.; Lieut.-Col. M. O. Darby; Lieut.-Col F. K. McClean, A.F.C.; Mr. W. O. Manning, and the Secretary.

Chairman.—Major-Gen. Sir Sefton Brancker, K.C.B., was elected Chairman of the Racing Committee for the year.

Whitsuntide Race Meeting.—It was decided to hold the Race Meeting on Saturday, June 3, 1922.

A new course for future races was selected, and list of events for the Whitsuntide Meeting was drawn up.

Aerial Derby, 1922.—It was decided to hold the Aerial Derby on Saturday, July 29, 1922, starting and finishing at Waddon Aerodrome, Croydon. The same course as in previous years, with the exception of Epsom, was selected.

Oxford and Cambridge Race, 1922.—The arrangements for this year's race were discussed. The Universities had suggested a relay race, and it was hoped to hold the contest on the same date as the Aerial Derby.

JACQUES SCHNEIDER CUP

Intending competitors are reminded that the entries for the Jacques Schneider Cup close on May 15, 1922. Entries should be made to the Royal Aero Club, 3, Clifford Street, W. 1, accompanied by a remittance of £10 to cover the entry fee.

The Aero Club of Italy, the present holders of the Cup, have decided to hold the race at Naples in the last fortnight of August.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN APRIL 30 AND MAY 6, INCLUSIVE

Route‡	No. of flights*	No. of passengers	No. of flights carrying Mails	No. of flights carrying Goods	No. of journeys complete††	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
						h. m.		
Croydon–Paris	49	70	14	31	46	2 42	D.H.34 G-EBBS (1h. 52m.)	B. (4), Br. (1), D.H. 4 (2), D.H. 9 (1), D.H. 18 (3), D.H. 34 (2), G. (8), H.P. (2), Sp. (4).
Paris–Croydon	51	149	8	33	41	2 59	D.H.34 G-EBBS (2h. 13m.)...	B. (4), Br. (1), D.H. 4 (2), D.H. 9 (1), D.H. 18 (3), D.H. 34 (1), G. (7), H.P. (2), Sp. (4).
Croydon–Rotterdam–Amsterdam.§	6	7	6	6	6	2 33	Fokker H-NABM (2 h. 10m.)	F.(5).
Amsterdam–Rotterdam–Croydon.§	6	2	6	6	5	3 27	Fokker H-NABM (3 h. 0 m.)	F. (5).
Totals for week ...	112	228	34	76	98			

§ to and from Rotterdam only.

* Not including "private" flights. † Including certain journeys when stops were made *en route*.
‡ Including certain diverted journeys.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).
F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. N. = Nieuport.
P. = Potez. R. = Rumpler. Sa. = Salmson. Se. = S.E.5. Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc. :—Co. des Grandes Expresses Aériennes; Daimler Hire, Ltd.; Handley Page Transport, Ltd.; Instone Air Line; Koninklijkie Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

Incidental Flying.—During the week Capt. Stocken had a busy time testing machines for the Aircraft Disposal Co. These included seven D.H. 9's, two Avros, and a Bristol Fighter.

On Saturday Major Foot took one of the A.D.C. Bristol Fighters over to Brussels.

THE "A.G.A." AUTOMATIC WIND INDICATOR AND GROUND SIGN

REFERENCE was made recently in these pages to an emergency landing-ground light, which automatically indicated the direction of the wind. This week we are able to give a few particulars, together with illustrations, of one of these lights, which is now undergoing tests at Croydon Aerodrome. This apparatus has been designed by the Gas Accumulator Co. (U.K.), Ltd., of Brentford—the well-known marine lighthouse designers and makers of the automatic aerial lighthouses—and is arranged to act as a signal to aviators both by day and night.

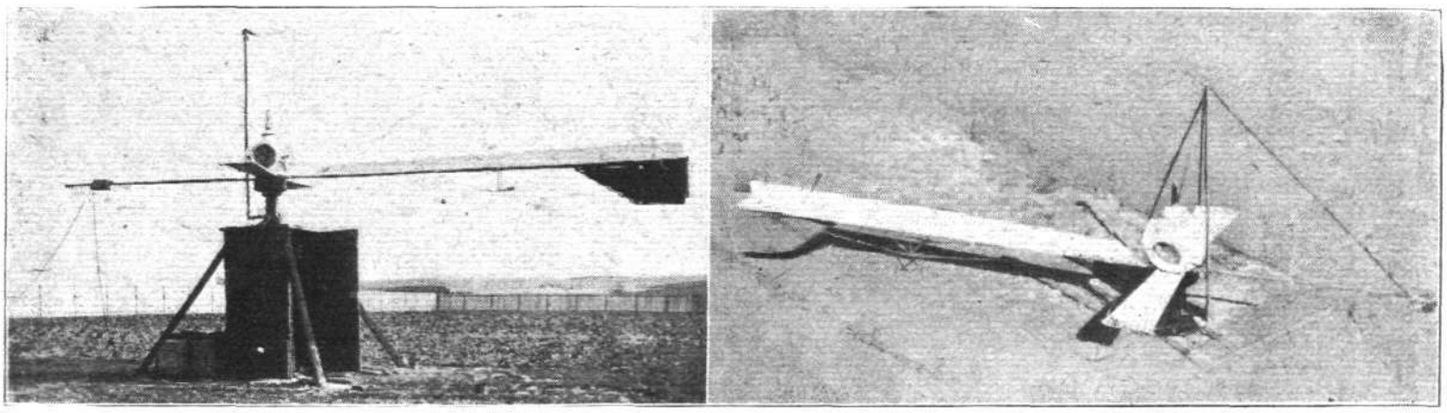
It is primarily intended for use on emergency or intermediate landing grounds where, in the former case, no personnel are available for giving daily attention to the ordinary landing lights and signs. Thus the whole unit is designed so as to be quite automatic in operation, and when installed in its permanent position it will be equipped to operate without human attention of any kind for periods of six months or one year.

As will be seen from the accompanying illustrations—which show the sign upon its temporary mounting—it consists of a framework built up in the form of the letter T, and very nearly approximates the form internationally agreed upon to indicate landing zones. The long arm of the T measures about 20 ft. in length, and the cross pieces are about 10 ft. across. These vanes are mounted in such a manner as to receive upon their upper surfaces beams of light projected through dioptric lenses arranged around the light source located at the junction of the long arm and the cross pieces. The vanes, together with the light source, are also mounted so as to rotate at will about a vertical axis, and by the employment of a suitably designed rudder, or fin, at the end of the T, the sign is made to swing and remain with the head of the T to the wind.

It is understood that the light power projected upon each of the vanes is 27,000 candle-power, and provision is made whereby the light will give a pre-arranged flashing signal, thus indicating any particular locality. The illuminant used is dissolved acetylene gas, stored in portable steel cylinders, and the "A.G.A." automatic mantle-changing gear, gas-operated mechanism, and Sun Valve lighting and extinguishing device, which were described in FLIGHT for April 21, 1921, are employed in the operation of this sign.

As a day sign it is stated that it can be observed, at normal flying height, from about five miles, whilst at night, as a flashing light without definite shape, it can be seen from about 12 miles, or its shape and bearing can clearly be established from a distance of two or three miles. We believe that provision can also be made for indicating, automatically, the velocity of the wind by means of coloured lights.

This apparatus certainly appears to possess great possibilities, and we watch its development with considerable interest.



THE "A.G.A." AUTOMATIC WIND INDICATOR AND GROUND SIGN : Two views of the apparatus now being tested at Croydon Aerodrome.

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LONDON-BRUSSELS SERVICE INAUGURATED

MONDAY last saw the inauguration of the new aerial passenger and goods service between Croydon and Brussels, which is being run by the Instone Air Line, under the Government subsidy. The first machine, D.H. 34 G-EBBT "City of New York," piloted by Mr. Barnard, and with passengers, left the terminal aerodrome at Croydon shortly after 10.30 a.m., the departure being witnessed by the Hon. Capt. Guest, Minister for Air, Major-Gen. Sir Frederick Sykes and many other well-wishers of commercial aviation.

This flight was only in the nature of a preliminary trip, a regular daily service being arranged to start on Monday next. It is of interest to note, however, that permission to fly over the Royal Yacht, on its way across the Channel, in connection with the Royal visit to Belgium, had been granted by the King. The machine arrived safely at Brussels at 12.50, having taken two hours two minutes to complete the journey—quite good going. The return trip to Croydon was made later on the same day; photographs for the Press of the Royal visit in Belgium forming an important item carried on the machine.

Owing to the engineers' strike, delivery of new machines has been considerably delayed, but it is hoped that before long the Instone fleet will comprise ten passenger machines and two specially built cargo machines, when a regular and frequent service to and from Brussels will be run without in any way interfering with the London-Paris service. Arrangements are being made to book through passengers *via* Brussels to all parts of the East by air. Passengers will be able to go to Brussels by air, spend a few hours, and return to London the same day—which should be a great boon, not only to tourists, but to commercial and business people. It is also the intention of the Instone Air line to run a service to Ostend during the summer months, whilst negotiations are taking place with the diamond merchants to run a "special" once a week to Antwerp, returning the same day.

The London-Brussels route will, we think, prove to be an extremely useful one for Brussels, as we remark elsewhere, would form an important junction for the various lines to Northern and Central Europe, and we take this opportunity of wishing this new service every success.

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Rio de Janeiro and Porto Alegre Air Service

THE Brazilian Government has been authorised to establish two aerial routes and aircraft services between the cities of Rio de Janeiro and Porto Alegre, an overland route for aeroplanes and a seaplane route along the coast. Both of these routes will, it is proposed, be ready by September, 1922. Although the routes are intended primarily for use by the military and naval forces, and will be organised and controlled by the Ministry of War and the Ministry of Marine, respectively, the facilities they afford will be available for civil purposes, subject to the consent of the Government being obtained, and the payment of a fee and charges for material used.

The Decree authorises the Government to borrow, up to a maximum of 4,000,000 milreis (about £120,000) to cover the cost of the scheme.

FLIGHT

NOTICES TO AIRMEN

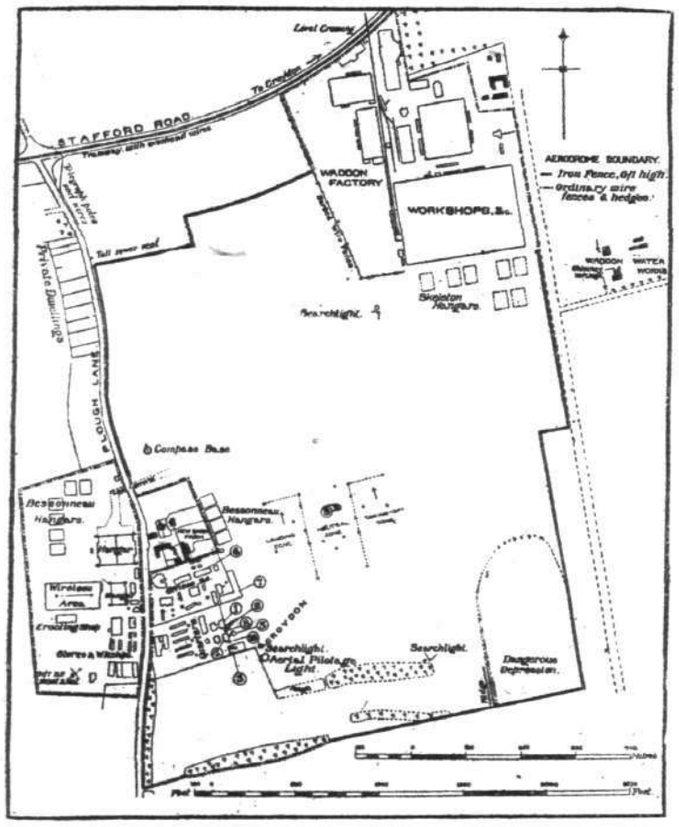
Croydon Aerodrome: Boundaries and Obstructions; Night Lighting System

1. The appended plan of Croydon aerodrome shows the general disposition of the present boundaries, buildings and other obstructions, and the arrangement of the night lighting system.

The lights mentioned in the following paragraphs are lit when required, between sunset and sunrise, on notice being given to the Civil Aviation Traffic Officer.

2. *Boundaries.*

A galvanised iron fence, 6 ft. in height, has been erected along portions of the north, east, south and west sides of the aerodrome, as shown on the plan.



Plan of Croydon Aerodrome: 1. Customs. 2. Wind indicator. 3. Circuit flag. 4. Traffic offices (C.A.T.O.). 5. Meteorological hut. 6. Garage. 7. Public enclosure. 8. Control Tower. 9. Automatic night landing sign (lights flush with ground). 10. Anemometer mast.

3. *Obstruction Lights.*

When the direction of the wind is such that the approach to or take-off from the aerodrome *by night* is over the iron boundary fence, red hurricane lights will be placed thereon in line with the illuminated double L (see para. 4 below), on both the windward and leeward sides. The remaining principal obstructions, such as buildings and W/T masts, will also be marked by red lights.

4. *Automatic Night Landing Sign.*

This sign (No. 9 on the plan) is a system of electric lamps beneath dome glass covers, sunk flush with the ground, and so arranged as to show a double L capable of orientation, according to the direction of the wind, to eight fixed points of the compass, *i.e.* at intervals of every forty-five degrees, commencing with Magnetic North.

This double L divides the landing area into three zones, in accordance with Clause 46, Annex D, of the International Air Convention.

The neutral zone is in the middle. Machines should land with the neutral zone on their right and take-off with the neutral zone on their left. The direction of landing is parallel to the long arm of the L, and *towards* the short arm.

A typical double L showing the three zones for a wind from Magnetic North is shown in dotted lines on the plan.

5. *Aerial Pilotage Light.*

Details of the Aerial Pilotage Light were given in Notice to Airmen No. 64 of 1921.

NOTE.—The illuminated wind indicator notified in Notice to Airmen No. 29 of 1922, not being a permanent installation, is not shown on the plan.

6. *Cancellation.*

Notices to Airmen Nos. 38 and 109 of 1921 are cancelled. (*No.* 38 *of* 1922.)

Wireless Telegraphy Stations in Operation in Connection with Civil Air Routes

NOTICE to Airmen No. 9 of 1922 is cancelled, and a new list has now been issued (No. 43, of 1922):—

The wireless stations operating in connection with civil air routes are classified as follows:—

Class "A":—Stations directly concerned with flying operations whose routine is primarily intended for aircraft.

Class "B":—Stations indirectly concerned with flying operations whose routine is not primarily intended for aircraft.

Aerodromes for Civil Use: Amendments

NOTICE to Airmen No. 35 of 1922 (Consolidated List of Aerodromes) is amended as follows:—

List C.—Licensed Civil Aerodromes.

The following should be added:—Aberdeen, West Seaton Farm; Abergavenny, Llanfoist; Bridlington, Sands Lane; Carmarthen, Johnstown; Elgin, Muir of Linksfield; Forfar, Heatherstacks Farm; Haverfordwest, Old Race Course; Huntly, Affleck Farm; Inverurie, Howford Bridge; Llandovery, Maes-y-Coed; Llanwrtyd Wells, Abernant Hotel; Lossiemouth, Kinnedar; Nairn, Auldearn; Newport, Rogerstone; Portskewett, Ifton Court; Udny Station, Thistly Hill.

The following should be deleted:—Leicester, Aylestone Lane.

(No. 45 of 1922.)

NOTICE TO GROUND ENGINEERS

Avro 504K Type Aircraft: Lift Wire Fittings.

1. The attention of ground engineers is directed to the necessity of ensuring that the wiring plate and socket (Joint H, item 1.F.103) taking the duplicate lift wires at the upper end of the outer rear interplane struts (port and starboard) on Avro 504K aircraft are of standard pattern.

2. The standard fitting is made up of 14 S.W.G. plate, the lower part, which carries the socket and wiring lugs, being reinforced on its upper face by the addition of a plate of similar thickness (item 18F.80), joined by edge welding, but cases have come to notice in which this part of the fitting has consisted of a single plate only.

3. All licensed Avro 504K aircraft should be examined forthwith, and any single plate fittings found should be replaced by standard fittings.

4. No Certificate of Airworthiness will be issued or existing Certificate of Airworthiness renewed in respect of any aircraft of this type unless the standard fittings are incorporated.

(No. 5 of 1922.)

PERSONALS

Married

Wing-Comdr. STANLEY JAMES GOBLE, D.S.O., O.B.E., D.S.C., was married at St. Martin-in-the-Fields on April 25, to KATHLEEN, daughter of Lieut.-Col. F. W. WODEHOUSE, C.I.E., and the late Mrs. F. W. Wodehouse.

ANTHONY CONNING KILBURN, late R.A.F., youngest son of Mr. and Mrs. C. Conning Kilburn, of Broadstone, Dorset, was married on April 27 to MAUD ISABELLA, eldest daughter of Mr. and Mrs. CHARLES TOPPIN, of the College, Malvern.

ERROLL D. SHEARN (late Hamp. Regt. and Capt., R.A.F.), of Kuala Lumpur, F.M.S., and Sidcup, Kent, was married on May 4 at Singapore, to DOROTHY MABEL, only daughter of C.W. S. PITTAR, I.C.S. (retired), and Mrs. Pittar, "Elmdene," 348, Banbury Road, Oxford.

GEORGE FREDERICK MACKAY, R.A.F., was married on April 29 at St. Mary Magdalen's, Brighton, to SONIA MARY, daughter of Mr. and Mrs. GEORGE GOODCHILD, 26, Vernon Terrace, Brighton.

To be Married

The engagement is announced between Flight-Lieut. ALBERT WILLIAM FLETCHER, D.F.C., A.F.C., R.A.F., youngest son of the late Mr. C. Fletcher and Mrs. Fletcher, of Child's Hill, N.W., and MARJORIE ELLIOT HAY, only daughter of Dr. and Mrs. Walter Hay, of Thame, Oxon.

LONDON TERMINAL AERODROME

Monday evening, May 9, 1922.

SEVERAL of the new machines that the various British companies have been anxiously awaiting were put on the service during the week. The first of the Handley Page W.8 b's returned from Martlesham Heath, where it had been undergoing type tests, and made its maiden trip to Paris—with Mr. Wilcockson as pilot—on Thursday. At Martlesham the machine lifted 300 lbs. above its stated load with ease.

The Instone D.H. 34, which has been to Martlesham undergoing type-tests, was also delivered at the aerodrome this week.

The Instone Air Line are experimenting with a three-blader Leitner metal propeller on one of their D.H. 34's. When first fitted, this propeller caused too much vibration, but slight adjustments in the pitch remedied this, and perfectly smooth running was obtained. Mr. Barnard took the "34" up for a trial flight, and expressed himself as being satisfied with the machine's performance, and it now remains to be seen by actual trial how this propeller will stand up under ordinary airway usage. The present "prop" was hand-made, but it is expected that when there is a reasonable expectation of good orders dies will be made and a much-improved "prop" produced.

Mr. Powell took one of the Instone 34's to Paris on Saturday morning, and made quite a good take-off, while several of the Instone pilots have been getting their hands in on this new machine during the week-end.

The Daimler Airways have been running two services in each direction daily with one machine. The second of the D.H. 34's, although delivered, is not yet on the service, and all the work last week fell on one machine—G-EBBS. On Wednesday, however, the service was suspended while the engine of this machine was changed, this process taking all day, owing to the fact that the new engine-changing arrangements are not yet completed. As they had a couple of passengers on this day for Paris, a De Havilland air-taxi, with Mr. Cobham as pilot, was hired from Stag Lane. Much comment was caused by this, as it is the usual thing on the aerodrome for a company which for some reason is unable to carry passengers they have booked to transfer them to another air-line which has room in a departing machine.

Activity with the Early-Morning Services

THE competition between the early morning 'planes is becoming keener. Three machines now leave in the early hours, the Messageries newspaper machine being scheduled out of Croydon as early as 5 a.m. The Instone newspaper air express leaves at 6 a.m., and the Daimler Airways send a machine at 6.45 a.m. The other morning the pilot of the Messageries machine, M. Denneulin, overslept himself in the Trust House, and had to be fetched from his bedroom when the machine was loaded and ready to get away. The keenness amongst the pilots may be gauged from the fact that M. Denneulin, rather than delay the machine while he dressed, flew off to Paris in his pyjamas.

Mr. Larry Carter had an unusual experience while flying the 10-seater Bristol from Paris to London on Wednesday. Just as he rose from the ground at Le Bourget one of the joints of his under-carriage became loose, and a portion of the under-carriage was left hanging down. This was quite unnoticed by Mr. Carter, but the officials at Le Bourget saw what had happened and wirelessed to Croydon a full description of the occurrence. The wireless operators at Croydon, as soon as Mr. Carter came within speaking range, "rang him up" and told him what had happened. Mr. Carter, being thus warned of what difficulties were in store for him when the time came for him to land, was able so to manœuvre his machine that, after a landing which excited the admiration of all the pilots on the aerodrome, only the tip of one wing was damaged. Had he not been made aware of the breakage in the under-carriage it is highly probable that a serious crash would have resulted.

A Queer Mishap on the Aerodrome

ANOTHER accident occurred on Thursday while the Grands Express Goliath, which had just flown from France, was being taxied into the shed. Just as the big machine was about to enter the shed, there being only a few feet clearance between the wing-tips and the walls, the mechanic who was taxying the machine inadvertently put his engines full on, with the result that the machine ran into the wall of the shed, knocking a hole through it. The front of the projecting cabin was completely smashed by its contact with the wall, but neither of the "props" was touched. As the Goliath swung into the wall one wing caught a Breguet which was standing near and twisted its *fuselage*. A mechanic sustained slight injuries.

The first consignments of strawberries are now arriving from France by air, and the Customs House has had a pleasant aroma these last few days, which, combined with the sudden arrival of fine weather, led one pilot to suggest to Captain Leverton that it was about time the cream arrived by air from Holland.

One of the regular pastimes now for pilots flying between London and Paris on the British machines equipped with wireless is to ring one another up and have a chat in the air.

On Saturday further tests, this time successful, were carried out with the new parachute which is designed to lift a pilot out of a machine falling out of control. This time the tests were made with a triple parachute, a very small one being first released, which pulls out a slightly larger one, which, in turn, exerts sufficient pull to release the large man-carrying parachute that finally lifts the pilot out of his seat. An ordinary parachute descent was also made.

Friday morning was particularly rough from a weather point of view, the wind being very gusty and uneven. Mr. Pyll, one of the new Dutch pilots of the K.L.M., had a strenuous time getting the monoplane away at 10 a.m. These machines are very awkward to handle in a wind, as the wings are difficult to get at, but now Mr. Leverton has had some hooks fitted on the end of a long pole, so that two mechanics, one on each wing can hold the machine comfortably. Mr. Leverton went down to Lympne during the week with a pair of these hooks, so that a monoplane force-landing there in a wind will be in no danger of being blown over.

Fokker Monoplanes with Rolls-Royce Engines

I UNDERSTAND that two Fokker monoplanes of the F.3 type, but fitted with Rolls-Royce 360 horse-power engines instead of 240 Pumas, are to be put on the London-Amsterdam service. These machines, while retaining the same passenger capacity (five), will have another compartment added for goods and luggage. They are intended to do the double trip in one day, and Messrs. Hofstra and Geysendorfer will be the pilots for the first month or so.

On Sunday the third of the D.H. 34's delivered to the Daimler Airways was put on the service, and on Monday morning, piloted by Mr. Herne, this machine did the double trip to Paris, taking two hours only in each direction.

Monday saw the opening of the Instone Air Lines service to Brussels. Captain Guest was down at the air-station to send the first machine away. Piloted by Mr. Barnard, it left at 10.48 a.m. It was Mr. Barnard's intention to fly over and photograph the royal yacht with the King and Queen on board, while over the middle of the Channel. At the same time Mr. Cobham left for Brussels, with a newspaper photographer, both he and Mr. Barnard intending to return late the same night with photographs of the arrival of the King and Queen in Brussels.

Captain Cockerill flew the first Vickers "Vulcan" over from Brooklands on Monday. Captain Cockerill tells me that the machine cruises at about 85 miles an hour, and it certainly lands at a very safe speed, while it gets off with its load after a comparatively short run. After the Brussels machine had left, and the distinguished visitors had departed for town, Captain Cockerill flew the "Vulcan" back to Brooklands to have the finishing touches added.

Recent Improvements

THE last of the new offices, that of the Marconi Co., is now nearly completed. Half of this is to be occupied by Messrs. Ogilvie and Partners, while the other portion is divided into an inner office and a store for flying helmets equipped with wireless 'phones. Mr. Strother, who has been associated with the aerodrome since its earliest days, is to be in charge of this office.

The small enclosure, where the traffic movement board and the weather reports are on view, has proved such a great attraction to the general public that it has had to be railed off. Although there has been a large sign with the words "No admittance" prominently exhibited, nobody appears to have taken any notice of it, and at times pilots have been unable to get near the weather reports for the crowd of interested spectators—which, just now, is composed largely of schoolboys on holiday.

Some of the little obstruction flags that besprinkle the aerodrome so plentifully at the present time, mark the spot where the electricians are busily renewing the glass covers over the electric landing lights. The mortality among these covers is, I am informed, remarkably high, the tail skids of the aeroplanes—especially the new heavy types—causing considerable damage.

FLIGHT

THE "FIRST EXPERIMENTAL CONGRESS FOR MOTORLESS FLIGHT"

French Soaring and Gliding Competition

ONE result of the German soaring and gliding competitions in the Rhön mountains has been the arousing of a general interest in this form of flying all over the world. Last year's Rhön flights demonstrated that it is possible to remain aloft for considerable periods without the aid of any power plant, and that during such flights it is occasionally possible for a machine to reach altitudes considerably greater than that of the starting point. For this year a very extensive competition has been planned, and in order not to be outdone by Germany in this phase of flying, France has decided to organise a meeting for motorless aircraft in the vicinity of Clermont-Ferrand, Auvergne. The actual scene of the competition will be Puy de Combegrasse, south-west of Clermont-Ferrand. The meeting, which is to extend over a period of 14 days—from August 6 to August 20—is to be organised by the French Aerial Association and the Aero Club of Auvergne, and is under the patronage of the French Under-Secretary of State for Air, M. Laurent-Eynac. Prizes to a total amount of 100,000 francs will be awarded, and the competition is open to French as well as Allied and neutral pilots and machines.

The machines must be of the heavier-than-air type, and must not be provided with any form of power plant. The pilot may, however, use his muscular power to assist his machine, so that a combination of glider and "Aviette" will not be barred. Entries should be sent to the Secretary, *Association Française Aérienne*, 17, *Boulevard des Batignolles, Paris*, 8e. The entrance fee is 50 francs per machine for entries which reach the Secretary before May 31, 100 francs for entries between June 1 and July 15, the closing date for entering. Entrance fees will be returned to competitors whose machines are at the scene of the competition on the opening day. Accompanying the entrance form a side view and a description of the machine should be sent in, so as to enable the organisers to make provision for proper garaging. Machines will be examined by competent judges, and must satisfy them as to structural strength and general aerodynamic qualities. Pilots, before being allowed to compete, will be required to give a demonstration of their skill by remaining aloft for at least 10 seconds.

Competitors may commence practice flights and preliminary tests from August 1. During the actual competitions machines must carry sealed barographs, provided by the National Meteorological Office, and a representative of that institution will be present to instruct competitors in the reading of graphs.

The Competitions

The meeting at Clermont-Ferrand will be devoted to various competitions, or, as the official programme modestly terms them, experiments.

Duration Flights.—Four prizes, of 5,000 francs, 3,000 francs, 1,500 francs and 1,000 francs, will be awarded in this section, in which competitors must start from the Puy de Combegrasse, but may fly in any desired direction and alight at any point. The machines must remain in the air for more than three minutes in order to qualify for these prizes.

Prizes will also be awarded for aggregate duration, all flights made, in whatever section, counting towards this, so long as they are of more than 30 seconds duration. The prizes are 5,000 francs, 3,000 francs, 2,000 francs, 1,000 francs and 500 francs.

Distance Flights.—Two prizes are to be awarded in this section, one of 10,000 francs and one of 5,000 francs. The distance between starting and alighting points will be measured by a straight line joining the two points on the map. Competitors will normally start from the Puy de Combegrasse, but under special conditions the judges may permit competitors to start from the Puy de Dôme. The minimum distances required are 2 kilometres and 5 kilometres respectively.

Minimum Rate of Descent.—M. Louis Breguet has placed 10,000 francs at the disposal of the organisers for the purpose of encouraging machines with a slow rate of descent. The amounts are to be divided as follows:—First, 5,000 francs; second, 2,500; third, 1,500; and fourth, 1,000 francs. In order to qualify in this section, competitors must indicate before the start the point at which they intend to alight, and must then make a landing within 200 metres of this point.

The time in the air must be more than two minutes, and the rate of descent be less than 1.50 metres (4.9 ft.) per second. If L is the difference in height (in metres) between starting and alighting point, and t the duration in seconds of the flight, the mean rate of descent will be $\frac{L}{t}$ in metres per second. L must therefore be less than 1.5, or t greater than $\frac{L}{1.5}$.

Altitude Flights.—Three prizes, of 5,000 francs, 3,000 francs and 1,500 francs, are to be awarded for reaching altitudes greater than that of the starting point. Competitors must start from the Combegrasse, but may alight anywhere. For ascertaining the altitudes reached, use will be made of the barographs carried on the machines, or of any other method which the judges may select.

Alighting at Predetermined Point.—One series of tests will comprise alighting at a predetermined spot, the judges selecting each day three different points, according to the wind direction, situated at least 500 metres from the Puy de Combegrasse. Competitors must state beforehand at which

Puy de Combegrasse, near Clermont-Ferrand, the scene of the forthcoming "First Experimental Congress of Motorless Flight." This meeting, which will be under the patronage of M. Laurent-Eynac, French Under-Secretary of State for Air, is to be held from August 6 to August 20, and prizes amounting to 100,000 francs will be awarded.

of the three points they intend to alight, and then attempt to alight as near as possible to the selected point. In judging the performance, account will be taken of the distance flown and duration of the flights. The prizes in this section are 2,000 francs, 1,000 francs and 500 francs.

Horizontal Flight.—Prizes of 3,000 francs and 2,000 francs will be awarded for the longest horizontal flights. This does not mean that the machines must proceed in a straight horizontal line, but may soar or glide along an undulating flight path, the points of which fall alternately above and below the horizontal line through the starting point. The duration of these flights will be determined by the barograph chart, which will show when the machine dropped below the horizontal line for the last time.

Other Prizes

In addition to the competitions and prizes indicated, fifteen "free prizes" of 1,000 francs each will be awarded to competitors whose machines have shown points of special interest. If any one machine appears to the judges to possess exceptional merits, they may award more than one of the prizes to one competitor.

The "Union for Safety in Aeroplanes" is offering 10,000 francs for features which tend to increase the safety of flying, and may award the money in one single prize, or divide it into several smaller ones. In addition there is to be a Réné Quinton prize of 10,000 francs, but the conditions for this have not yet been decided upon. They will, however, be announced later.

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THE FLIGHT AROUND THE WORLD

Major Blake's and Captain Macmillan's Attempt

AT the time of the very regrettable accident to Sir Ross Smith and Lieut. Bennett we expressed the hope that the attempt to fly around the world might still be made by a British crew on a British machine. That wish now promises to be fulfilled, thanks to the sporting offer of the Aircraft Disposal Co. to provide not one but four machines for the flight on which Major Wilfred Blake and Captain Norman Macmillan hope to start within the next month or so. In a way, one might have preferred to see the flight carried out on one machine, although from a practical point of view the use of four machines, of three different types, is probably at least as good a proposition. It should also be borne in mind that, when we come to circle the globe regularly, the journey will certainly not be made in one, but in many machines, certain types being used on certain routes for which they are best fitted.

As regards the machines to be used, these, as already mentioned, will be provided by the Aircraft Disposal Co., who are now busily engaged on the work of getting them tuned up ready for the flight. Two of the machines will be D.H. 9's (three-seaters) with Siddeley "Puma" engines. One will be a Fairey twin-float seaplane of the famous F. III type, which has a Rolls-Royce "Eagle" engine, and the fourth will be a flying boat of the F type. It has not, at the moment of writing, been definitely decided whether the F.3 or F.5 will be used.

In the main, the route to be followed by Major Blake and Captain Macmillan will be the same as that planned by Sir Ross Smith (a map of which was published in our issue of April 13, 1922). The last "leg" however, will be different from that planned by Sir Ross Smith, who, it will be remembered, had intended to make the Atlantic crossing direct from Newfoundland to Ireland if possible, or, as an alternative, fly from Newfoundland to London *via* the Azores and Portugal. Major Blake and Captain Macmillan intend to follow the northern route *via* Greenland, Iceland, the Faroe Islands and Scotland, which will considerably shorten the non-stop stages that have to be negotiated. At the time of year when it is expected to cover this part of the flight the weather in the northern latitudes should be favourable, except for local fogs, and by taking this route the strain on the engines should be considerably reduced.

The manner in which it is intended to use the various machines is as follows: One of the D.H. 9's will be used for the journey from London to Calcutta. Here the aviators will change over to the Fairey F. III seaplane, which will take them around the coast up to Kamchatka and across to Alaska. Here another D.H. 9 will await them, on which the flight across Canada and America to New York will be accomplished. From New York or Newfoundland the last stage, across the northern part of the Atlantic, will be attempted in the F. boat.

This, in very brief outline, is the plan of Major Blake and Captain Macmillan, and, barring unforeseen accidents, the scheme promises success. That difficulties will be met and obstacles have to be overcome goes without saying, but there is certainly a very good chance of getting through. All the machines to be used, although of fairly old type, have been proved by years of flying under all sorts of conditions, and should be capable of the stages on which each is being used. The engines also have proved themselves in numerous long-distance flights, and may be expected to uphold the reputation already established. Captain Macmillan is one of our best pilots, and has had experience of a number of different types of machines. We understand that Major Blake is to act as navigator, and presumably he will go through a short course at Biggin Hill, as did Sir Keith Smith in order to make his navigation as certain as it was possible to make it. We believe it is intended to carry a third man, but so far as we are informed no selection has been made yet.

Altogether, the scheme looks promising, and we wish the gallant aviators every success in their very sporting attempt to uphold once more the prestige of British pilots, machines and engines.

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The P.M.G. on Air Mail Services

DURING his speech in the House of Commons on May 4 upon the Post Office Vote, Mr. Kellaway, the Postmaster-General, said that a branch of the service which was of great interest and, indeed, of fascination, was that of the carriage of mails by air. The progress made not only in this country, but in most other countries, had not realised anything like the sanguine expectations that some of them held a few years ago, but he thought that last year had shown greater progress than in any other period since man conquered the art of flight. There would be between England and the Continent three services to Paris by three British companies, and mails would be sent by whichever of these services was most convenient. Two air mails a day would be leaving Croydon Aerodrome, one at 10 a.m. and one at 12.15. A service to Brussels would start on May 15, and to Holland after May 15. There would be two outward services, at 10 a.m. and 2 p.m. The greatest benefit of these long-distance air services had been secured in the parcels post. The parcels post to Paris carried by air effected a saving of from five to six days. That was due not to the increased rapidity with which the parcels were carried, but to the fact that the Customs facilities were much greater in dealing with air parcels than with parcels sent in the ordinary way. The saving of time, however, was very considerable, and he was surprised that greater use was not being made of the air parcels service. As a result of tenders which the Post Office had accepted, the cost of carrying these parcels would be greatly reduced this year. The charges would be up to 2 lbs., 1*s.* 9*d.*; up to 5 lbs., 3*s.*; up to 8 lbs., 3*s.* 9*d.*; and up to 11 lbs., 4*s.* 3*d.* He thought the House would agree that these charges compared very favourably with the charges for parcels sent to Paris in the ordinary way. The most successful of all the air mail services with which this country was associated was that from Cairo to Baghdad. A letter sent from London to Baghdad in the ordinary way took from 28 to 30 days. Sent by air service it took only 12 days. The fee charged was only 6*d.* per ounce, the ordinary fee being 3*d.* Ten per cent. of the whole Baghdad letter mail was now being sent by air, and the efficiency and reliability which the Air Ministry had reached in this service would, he thought, assure in the future that there should be a great expansion in the use of the air mail in that district.

He visualised the time when throughout the Empire we should be able to provide air services which would make just as great a saving in time as that which the Air Ministry had succeeded in making between Cairo and Baghdad. No man could put any limitation to the possibilities of this service, and the fact that accidents had happened, that the percentage of reliability had not so far been very great, was no proof that the Air Ministry and those companies which had, with great audacity, invested their capital in these services, would not succeed in doing for the whole of the Empire what the Air Ministry had succeeded in doing between Cairo and Baghdad. A Civil Aviation Advisory Board had been formed by the Air Ministry with a representative of the Post Office upon it, and its first business was "To consider the cost and the practicability of setting up an Imperial Air Mail Service."

FLIGHT

THE ROYAL AIR FORCE

London Gazette, April 28, 1922.

General Duties Branch

Flight Lieut. T. R. Hackman is transferred to the Res., Cl. A. ; April 30. Wing Comdr. A. V. Bettington, C.M.G., is placed on half-pay, Scale A ; May 1.

London Gazette, May 2, 1922

General Duties Branch

The follg. are granted permanent commns., with effect from the dates indicated, retaining their present substantive ranks and seny. *Gazettes* of dates indicated, appointing them to short service commns., are cancelled :—

Flight Lieuts.—H. G. Bowen, M. Thomas, A.F.C., T. F. W. Thompson ; Oct. 24, 1919.

Flying Officers.—A. L. Fiddament ; Sept. 16, 1919. B. R. Harris ; Dec. 12, 1919. L. G. Harvey ; Sept. 12, 1919. G. L. Ormerod ; Sept. 12, 1919. S. L. G. Pope ; Oct. 24, 1919.

Flying Offr. C. R. Smythe is granted a permanent commn., with effect from Sept. 16, 1920, retaining his present substantive rank and seny. *Gazette* Oct. 1, 1920, appointing him to a short service commn., is cancelled. W. B. Higgins is granted a short service commn. as Flight Lieut. for three years on the active list, with effect from, and with seny. of, April 18. Flight Lieut. T. Hinshelwood, D.S.C., D.F.C., relinquishes his short service commn. on account of physical unfitness for full flying duties, and is granted rank of Maj. ; April 11. Flying Offr. C. F. P. Haslegrave relinquishes his short service commn. on account of physical unfitness for full flying duties, and is permitted to retain rank of Lieut. ; May. 3. Flying Offr. R. E. Brown, Lieut., R.G.A., relinquishes his temp. commn. on return to Army duty ; April 20.

Stores Branch

Pilot Offr. R. T. Rich is granted a perm. commn. as Flying Offr., with effect from, and with seny. of, Dec. 12, 1919, and is transferred to Stores Branch, with effect from Jan. 19. *Gazette* Dec. 12, 1919, appointing him to short service commn., is cancelled. G. W. Longstaff is granted a short service commn. as Flying Offr. on probation, wth effect from, and with seny. of, April 25.

Memoranda

The follg. are granted temp. commns. in the ranks stated for duty with the Works and Buildings Service, with effect from dates indicated, and relinquish these commns. on ceasing to be employed, with effect from dates indicated : Squadron Leader M. C. Rousseau, May 1, 1921 ; April 1. Flying Offr. A. E. Davies, Nov. 1, 1920 ; March 1. The follg. relinquish their temp. commns. on ceasing to be employed :—Flying Offr. C. W. Grey, Flying Offr. (Hon. Flight Lieut.) G. M. Cox ; April 1.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified :—

Squadron Leaders.—T. W. Elsdon, from R.A.F. Depôt (Inland Area) to Egyptian Group Headquarters (Middle East). 25.4.22. W. C. Hicks, A.F.C., from R.A.F. Depôt (Inland Area) to Headquarters, R.A.F., Iraq (Supernumerary). 21.4.22. D. Harries, A.F.C., from Headquarters Coastal Area to Headquarters R.A.F., Iraq (Supernumerary) to command Armoured Car Company (on formation). 21.4.22. R. E. Manning, M.C., from No. 2 Flying Training School (Inland Area) to command No. 6 Squadron (Iraq). 21.4.22. L. Auker, O.B.E., from The Packing Depôt to command The Stores Depôt (Iraq). 21.4.22. P. C. Sherren, M.C., from No. 60 Squadron (India) to R.A.F. Depôt (Inland Area) (Supernumerary). 28.3.22.

Flight Lieutenants.—W. A. K. Dalzell, from No. 1 Flying Training School (Inland Area) to No. 4 Flying Training School (Middle East). 25.4.22. A. C. Ransford, from R.A.F. Depôt (Inland Area) to School of Technical Training (Men) (Inland Area). 6.4.22. D. O. Mulholland, A.F.C., from No. 100 Squadron (Inland Area) to Headquarters R.A.F. Iraq. 21.4.22. H. G. Bowen, from R.A.F. Depôt (Inland Area) to Headquarters R.A.F., Iraq. 21.4.22. E. F. Turner, A.F.C., from School of Technical Training (Men) (Inland Area) to No. 70 Squadron (Iraq). 21.4.22. H. A. J. Wilson, O.B.E., from Record Office (Inland Area) to Headquarters R.A.F., Iraq. 21.4.22. F. J. Cooke, from No. 1 Stores Depôt, to Headquarters R.A.F., Iraq. 21.4.22. T. Henderson, M.C., A.F.C., from School of Technical Training (Men) (Inland Area) to No. 100 Squadron (Inland Area). 1.5.22. G. T. Richardson from R.A.F. Depôt (Inland Area) to No. 100 Squadron (Inland Area). 1.5.22. A. W. Smith, from No. 4 Stores Depôt to No. 5 Flying Training School (Inland Area). 15.5.22. A. E. Barr-Sim, M.B., from School of Technical Training (Men) (Inland Area) to Headquarters R.A.F. (India). 21.4.22.

Honours

IN the *London Gazette* of April 28 the Air Ministry announces that H.M. the King has granted unrestricted permission for the wearing of the following decorations conferred by H.M. the King of Italy on the following officers for valuable services in connection with the War :—

Order of the Crown (Officer).

Lieut.-Col. E. G. O. Beuttler, O.B.E.
Major J. H. D. Grant.

R.A.F. Sports Board

Fencing.—The Navy and Air Force met for their return fencing match at the R.A.F. Fencing School, Uxbridge, on April 27. The Navy were not at full strength, notable absentees being Commander Byrne, Lieut. C. A. Kershaw and C.P.O. Howson, but the fencing was of a high order and the contests very interesting.

The Air Force won the foils by 6 victories to 3. The Navy adopted the Italian style, and their attacks were consequently of a very vigorous nature, whilst the Air Force fenced in the French style, their touches being most academical.

The Epées were rather one-sided, the Air Force winning by nine clear victories. In the Sabres the Navy were victorious by 7 victories to 2.

RUSSO-GERMAN AIR MAIL SERVICE : Our photograph shows two of the Fokker monoplanes to be used on the Königsberg-Moscow service, which was inaugurated on May 1. At first the service will be bi-weekly, the machines leaving Königsberg at 9 a.m., arriving at Smolensk at 4.15 p.m., leaving Smolensk at 4.45 p.m., and arriving at Moscow 7.45 p.m. In the opposite direction the times are as follows : Moscow 6.30 a.m., Smolensk 9.30, leave Smolensk 10, arrive Königsberg 3.15 p.m. Machines will leave Königsberg on Sundays and Thursdays, and Moscow Sundays and Wednesdays. The railway journey between Berlin and Königsberg occupies 12½ hours, and the flight between Königsberg and Moscow 9 hours, giving a total of 22 hours, as compared with more than five days by train. The air mail fees are to be 8 marks for post cards and 8 marks for every 20 grammes in the case of letters.

CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

UNEMPLOYED GROUND ENGINEERS AND PILOTS

[2055.] I have been a constant reader of your valuable journal since the first issue, and am very keen on all matters appertaining to Aviation.

Having read, with much interest, the article in your issue of April 13, 1922, page 213, "What can we do with our sons?" I quite agree that the scheme of apprenticeship is quite good, but there is one big fact that most people overlook, viz.: "The present urgent need to absorb all the *unemployed qualified Air Ministry Ground Engineers and Pilots,*" before going to the expense and trouble of training fresh men who will, in all probability, go to add to the present long waiting lists.

I might add that I served and completed my apprenticeship to the Aviation industry with Messrs. A. V. Roe and Co., Ltd., Aeronautical Engineers, Manchester, London and Southampton, some eight years ago. In all I have had over ten years' Aviation experience, and am a fully qualified Air Ministry Ground Engineer, in Sections A, B, C and D, No. 40. Since April 16, 1921, I have been unable to obtain suitable employment.

"ONE OF THE SONS"

THE POSITION OF THE K.M.A.A. CUPS

[2056] After a somewhat protracted correspondence and an assiduous endeavour to ensure that the cups donated by such eminent gentlemen as Sir Chas. Wakefield, Messrs. A. W. Gamage, Grahame-White, E. C. Trollope, Percival Marshall (to mention but a few of those who presented cups and trophies to the now defunct K.M.A.A.) were put to the use for which they were intended, it would appear that at present they are in the custody of Mr. W. H. Akehurst (the Secretary of the K.M.A.A.), who claims that, before handing them over, a debt of a few pounds owing to him shall be paid.

I submit that it is high time those who gave cups were made cognisant of this pass. If a secretary of an association sees fit to settle accounts out of his own pocket, is it a legal position that he should hold the association's cups to ransom? I suggest that the donors concerned should appoint some other body to be responsible for them.

Until this is done there seems no possibility of model aeronautical enthusiasts taking advantage of what has already been given to further interest in this subject.

The present position cannot go on indefinitely.

J. J. CAMM

PUBLICATIONS RECEIVED

Lektrik Lighting Connections. 7th Edition. A. P. Lundberg and Sons, 477-489, Liverpool Road, Holloway, N. 7. Price 1s. net.

Royal Air Force Memorial Fund: Second Report, January 1 to December 31, 1921. Royal Air Force Memorial Fund, 7, Iddesleigh House, Caxton Street, Westminster, S.W. 1.

Catalogue of the Collections in the Science Museum, South Kensington. Aeronautics. London: H.M. Stationery Office. Price 1s. 6d. net.

Atmospheric Pollution. Advisory Committee Report M.O. 249. Meteorological Office, Air Ministry. London: H.M. Stationery Office. Price 2s. net.

Proceedings of the Second Air Conference, held on February 7 and 8, 1922. London: H.M. Stationery Office. Price 3s. net.

Pictorial Calendar, April, 1922, to April, 1924. Handley Page Transport, Ltd., London Terminal Aerodrome, Croydon, Surrey.

Aeronautics: Catalogue of the Collection in the Science Museum, South Kensington, 1922. H.M. Stationery Office, Kingsway, London, W.C. 2. Price 1s. 6d. net.

Verslagen en Verhandelingen van den Rijks-Studiedienst voor de Luchtvaart, Vol. I, 1921. Rijks-Studiedienst voor de Luchtvaart, Amsterdam, Holland.

Scientific Papers of the Bureau of Standards. No. 428. The Radio Direction Finder and Its Application to Navigation. Department of Commerce, Bureau of Standards, Washington, D.C., U.S.A.

Report No. 138. The Drag of C Class Airship Hull with Varying Length of Cylindric Midships. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

THE LONDON AERO-MODELS ASSOCIATION

THE competition organised for the prize presented by Messrs. W. G. Evans and Sons, was held on Sunday, the 7th inst., at Wimbledon Common. Weather conditions were favourable, with the exception of a rather gusty wind.

The majority of the competitors failed to get off ground, partly owing to the rather rough ground and partly because of the wind, most models being tractors of the enclosed type. Mr. Herson and Mr. Bedford, however, accomplished good flights; Mr. Levy, who was flying an enclosed canard model, also getting away on one occasion. Results will be announced later.

A very good exhibition was given at the end of the competition before a large number of interested spectators.

L. G. H. HATFULL,
Assistant Secretary.

IN PARLIAMENT

R.A.F. Experimental and Reconditioning Work

MR. RAPER, on May 4, asked the Secretary of State for Air how many men are being employed at the Royal Aircraft Establishment on experimental work, and how many on reconditioning machines?

Captain Guest: The answer to the first question is, approximately, 606; to the second, none at present, but four or five will be shortly employed on reconditioning two of the machines used for experimental purposes.

Mr. Raper: Is it not a fact that this work of reconditioning machines could be carried out much better by civil aviation firms, and that it would be far more economical and would help to keep these firms going?

Captain Guest: If the hon. member will study the reply he will see that 606 men are employed on experimental work, and not on reconditioning, and that only four or five mechanics are to be employed on reconditioning two experimental machines. Reconditioning is being done by the trade.

Jules Verne Up-to-Date

MANY of the inventions imagined by Jules Verne—both aircraft and submarines—have already been realised, so who shall say that the design for a jet-propelled monoplane seaplane described by M. Maurice Armende in our French contemporary, *Les Ailes*, of May 4, will not materialise—some day? This machine is a cantilever monoplane with crescent-shaped wings and circular hull. The material of which this wonderful monoplane is built is stated to be a new composition called Neocellulose, into which is embedded structural members of metallic alloy. The wings are to be flexible, both vertically for dihedral and in a fore-and-aft direction for shifting the c.p. They are to be held in any position by being filled with gas under high pressure. A series of stepped jets at the tail end of the fuselage are to take the place of airscrews, and evidently their efficiency is expected to be fairly good, as the machine is expected to have a maximum speed of 560 m.p.h., the maximum horsepower being 10,600 h.p. The machine will only come down every few thousand miles, a flying tender taking passengers down to the ground or bringing them up from the various ports of call. The wing-span is to be 250 ft., and the wing area 5,400 sq. ft. *Some bird!*

FLIGHT

The Aircraft Engineer and Airships

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.

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